The photosensitive layer of the photosensitive lithographic printing plate according to the present invention is exposed imagewise with a conventionally known active ray, for example, a carbon arc lamp, a high-pressure mercury lamp, a xenon lamp, a metal halide lamp, a fluorescent lamp, a tungsten lamp, a halogen lamp, a helium-cadmium laser, an argon ion laser, an FD-YAG laser, a helium-neon laser or a semiconductor laser (350 to 600 nm), and then subjected to development processing with the developing solution described above to form images on the surface of aluminum support.

After the imagewise exposure but before the development the lithographic printing plate may be subjected to heating at a temperature of from 50 to 150°C for a period of from one second to 5 minutes for the purpose of increasing the curing rate of photo-polymerizable photosensitive layer.

The photosensitive lithographic printing plate according to the present invention has ordinarily the oxygen-isolating protective layer (an overcoat layer) as described above on the photosensitive layer. In order to remove the overcoat layer, there are a method wherein removal of the overcoat layer and removal of the photosensitive layer in the unexposed area are carried out at the same time using the developing solution according

to the present invention and a method wherein the overcoat layer is first removed with water or warm water and then the photosensitive layer in the unexposed area is removed by the development. To the water or warm water, for example, an antiseptics as described in JP-A-10-10754 or an organic solvent as described in JP-A-8-278636 may be incorporated.

The development of photosensitive lithographic printing plate with the developing solution according to the present invention is carried out at a temperature of from about 0 to about 60°C, preferably from about 15 to about 40°C in a conventional manner, for example, that the imagewise exposed photosensitive lithographic printing plate is immersed in the developing solution and rubbed with a brush.

When the development processing is performed using an automatic processing machine, the processing ability of the developing solution may be recovered using a replenisher or a fresh developing solution, since the developing solution becomes exhausted with the increase in processing amount.

The photosensitive lithographic printing plate thus-processed is subjected to post-treatment with washing water, a rinsing solution containing a surface active agent or a desensitizing solution containing gum arabic or

a starch derivative as described, for example, in JP-A-54-8002, JP-A-55-115045 and JP-A-59-58431. These processes may be used in various combinations for the post-treatment of photosensitive lithographic printing plate according to the present invention.

The printing plate obtained by the development processing described above can be increased its press life using post-exposure treatment by a method as described in JP-A-2000-89478 or heat treatment, for example, burning.

The lithographic printing plate obtained by the processes described above is mounted on an offset printing machine to perform printing, whereby a large number of prints are obtained.

The present invention will be described in greater detail with reference to the following examples, but the present invention should not be construed as being limited thereto.

EXAMPLE 1

An aluminum plate of 1S having a thickness of 0.30 mm was subjected to surface graining using a nylon brush of No. 8 and an aqueous suspension of pumice stone of 800 mesh and washed thoroughly with water. The plate was etched by immersing in a 10% aqueous sodium hydroxide solution at 70°C for 60 seconds, washed with running water, and washed with a 20% aqueous nitric acid solution for